

PATENT SPECIFICATION

NO DRAWINGS

872,181



Date of filing Complete Specification March 23, 1960.

Application Date March 24, 1959.

No. 10100/59.

Complete Specification Published July 5, 1961.

Index at acceptance: —Class 91, E.

International Classification: —C09k.

COMPLETE SPECIFICATION

Improvements to Floor Sweeping Compositions

We, WATCO LIMITED, a British Company, of 56, Buckingham Gate, London, S.W.1, and HAROLD SILMAN, a British Subject of the same address do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

Floors in factories and garages frequently become heavily coated with grease and there is great difficulty in cleaning them. Water, with or without detergents, is usually unsatisfactory, because a wet floor is undesirable and the drying of it involves much labour. Attempts to clean by the aid of absorbent but otherwise inert finely divided materials such as sawdust have not been very successful.

The aim of the present invention is to apply to the floor to be cleaned a reagent which will emulsify or dissolve oils and greases, rendering them capable of ready absorption by a pulverulent carrier, and to apply it not as a freely flowing liquid, but in a sufficiently moist form to promote the desired reaction, reagent, grease and dirt becoming absorbed by or adherent to the carrier and capable of being swept away with the carrier leaving the floor dry as well as clean.

The carrier may be any finely divided material capable of taking up a useful amount of liquid. Soft wood sawdust of medium fineness is satisfactory; so are kieselguhr, fuller's earth, the highly absorbent form of bentonite, and calcium carbonate. Sawdust and bentonite absorb aqueous solutions freely; fuller's earth is especially absorptive of greases; mixtures of these carriers may be employed adapted to the particular cleaning problem to be tackled.

The active solvent and emulsifying reagent must be sufficiently strongly alkaline to react in a moderate time with the oils and greases encountered, but must not be obnoxious by reason of strong smell or otherwise.

Amines of the higher fatty acids satisfy

these requirements; primary stearyl amine may be taken as typical. In selection of the amine its bactericidal properties also deserve consideration. Broadly speaking any primary, secondary or tertiary amine of the general formulae RNH_2 , $RR'NH$ and $RR'R''N$ will serve when at least one R group is a long chain fatty alkyl radical having a carbon chain length between C_8 and C_{25} .

For incorporation with the sawdust or other carrier the amine is dissolved. An organic solvent such as white spirit is suitable, but any petroleum distillate fraction having a boiling range between $150^\circ C.$ and $200^\circ C.$ can be employed. The proportion of emulsifier or solvent so added must not be such as to make the carrier wet or soggy, so that the solution is liable to drip away. A proportion of 3 to 5 per cent by weight of amine to carrier has been found satisfactory, but the proportion can be varied according to the particular carrier or carrier mixture employed.

It is of advantage to add glycerol or a glycol such as ethylene or polyethylene glycol, for the sake of its hygroscopic and hydrophilic quantities. It hinders the water in the compound drying out, helps to lay dust, and assists the emulsification and absorption of grease. The best proportion depends on the nature of the carrier; it should be enough to free the compound of loose dust.

Finally, a small proportion of a wetting agent is desirable; either an anionic or non-ionic surface active agent will serve.

In making up the compound it is convenient first to impregnate the carrier with the amine solution, and then to add, say, crude glycerine containing one per cent of a wetting agent. The incorporation of the active constituents may be effected by sprinkling them on the carrier as it is turned over and over in a rotating drum.

In use, the compound is spread in a thin layer upon the floor, and allowed to remain

as long as convenient, say overnight or over a week end. It is then swept up taking grease and dirt with it. Naturally if there is grease and dirt enough a second application may be needed.

WHAT WE CLAIM IS:—

1. A floor-sweeping composition comprising an absorbent in a state of fine division, impregnated with a solution of an alkyl amine which includes a fatty alkyl radical having a carbon chain length between C_8 and C_{18} ,

the impregnated absorbent remaining pulverulent.

2. A floor-sweeping composition according to Claim 1 incorporating also a hygroscopic glycol or glycerol.

3. A floor-sweeping composition according to Claim 1 or 2 incorporating also a wetting agent.

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PROVISIONAL SPECIFICATION

Improvements to Floor Sweeping Compositions

We, WATCO LIMITED, a British Company, of 56, Buckingham Gate, London, S.W.1, and HAROLD SILMAN, a British Subject of the same address, do hereby declare this invention to be described in the following statement:—

Floors in factories and garages frequently become covered with heavy layers of grease, so that there is considerable difficulty in cleaning them. Water, with or without detergents, is usually unsatisfactory because of the problem of dealing with wet floors and the fact that the removal of residual water involves a considerable amount of labour; for this reason wet, cleaning is not looked upon with a great deal of favour. It is therefore, desirable to have a dry absorbent compound to remove grease and dirt from such floors; in the past, materials based on sawdust or other absorbent substances of various kinds have been used but have not proved entirely satisfactory. In the present invention means of improving the detergent and absorptive properties of such compounds is described.

In making the preferred composition the basis employed is an absorbent material, which may be a suitable grade of sawdust or some other substance having the required properties such as Fuller's Earth, Bentonite or mixtures of these. To the absorbent is added a solution of a fatty acid amine such as a stearine or rosin amine dissolved in a suitable solvent, e.g. white spirit in the proportion of about 3 to 5 per cent of the basic material. The amines, being strongly alkaline in nature, have the property of emulsifying and dissolving greases and oils, particularly when they are applied in solution in an organic solvent and held in contact with the floor by means of the absorbent compound. They also

have bacteriocidal properties, which assists in keeping the floor germ-free.

To the mixture of the absorbent and the amine solution is then added a sufficient quantity of an emollient and hygroscopic, hydrophilic materials such as glycerine, ethylene glycol or polyethylene glycol together with a non-ionic or cationic surface active agent. A suitable material to use is an aqueous solution of crude glycerine containing about one per cent of the wetting agent, the object of which is to assist in emulsifying the grease and dirt after it has been subjected to the action of the amine, and to transfer it to the water-phase. It also serves to improve the dust laying properties of the compound. A sufficient quantity of this solution is incorporated to make the product dust-free and easily applied to the floor, yet not in excess, as this would make it unduly wet. The exact amount must be found by trial, as different grades of sawdust have different absorptive properties, and will thus take up different amounts of water. A suitable way of preparing the material is to put the sawdust into a rotating barrel and to sprinkle the various solutions onto it in the order which has been given above.

In use, the compound is simply spread on to the floor in a thin layer and allowed to remain as long as convenient, after which it is swept up, when the grease and dirt should be removed, and left clean and dry. In the case of an extremely dirty floor a second application may be required.

For and on behalf of
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